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SOLUTION BRIEF

# Edge solutions without the complexities of management with Vultr Cloud Compute

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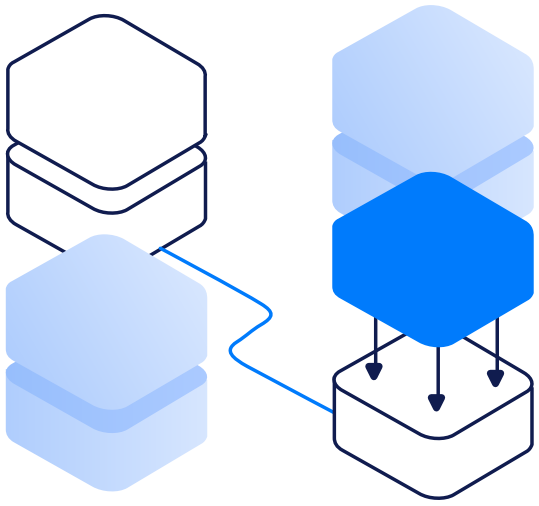
As cloud computing has become an industry norm, edge computing has emerged as its powerful extension. Edge computing's decentralized architecture brings computing and full-stack solutions closer to the data source. This close proximity vastly reduces latency and enhances performance, enabling near-instant processing of massive volumes of information. Many industries are adopting edge computing, from manufacturing and mining to medical research and retail.



While edge computing is helpful across industries, its value to e-commerce businesses is undeniably significant. Enabling e-commerce or web developers to deploy and test at the edge allows them to ensure you're providing the best possible product to your customers, no matter where they are in the world.

Vultr allows you to offer edge access to your remote e-commerce employees by building it into a virtual desktop infrastructure (VDI) solution, delivering all the benefits of cloud computing without the complexities of infrastructure management.

# What is edge computing, and why is it important?

Despite skyrocketing adoption across numerous business sectors, edge computing can be a fuzzy concept, even for those who are tech savvy as there are multiple types of edge computing. They include device edge, such as vending machines and factory equipment, mobile edge, which refers to mobile phones and vehicles, branch edge, for instance a point-of-sale system, just to name a few. The term "edge computing" describes an architectural paradigm that locates cloud infrastructure's computational (processing) and data storage components close to where the data is created.

Edge computing evolved to fix the shortcomings related to distance of traditional cloud computing. With the edge, high-performance cloud solutions bring their computing power to where people live and work. This means edge servers are essentially localized, full-stack cloud computing technology.

The cloud once promised nearly infinite potential for mobile computing. However, mobile phones, the Internet of Things (IoT), and smart devices now generate data at a volume that has substantially outpaced the cloud's infrastructure resources. For tools and systems that need real-time reports – such as medical data, financial fluctuations, or transit flows – traditional cloud offerings result in bottlenecks that cause unacceptable delays.

Edge computing places the technology that processes device-generated data closer to its source. By keeping the physical infrastructure close to the information it processes, this data no longer needs to travel through high-traffic cloud channels. That's how edge computing minimizes latency and enhances processing power in both speed and volume. This mode of high-powered computing is crucial now more than ever, primarily due to the IoT.

Internet connection – once relegated to computers, tablets, and phones – is now the lifeblood of IoT devices such as automobiles, smart home appliances, factor sensors, and commercial surveillance systems. The proliferation of IoT devices is responsible for the soaring demand for the low-latency, high-volume data processing that edge computing enables.

Despite the tremendous potential of traditional cloud computing, its distributed architecture restricts performance. While it eliminates the need to maintain on-premises server infrastructure, users have little control over where this infrastructure exists in relation to their data. For example, if your database lives in Vancouver, but your cloud instance runs in Peru, there's little you can do to mitigate the resulting latency.

Edge computing eliminates these restrictions by bringing the immense power of cloud computing to you and your customers.

# How Vultr delivers edge computing

With an extensive global network of data centers, Vultr keeps your information closer to you and your users. Vultr's distributed architecture takes advantage of geography instead of competing with it. Keeping your data and computing power where you need it means that you can spin up and deploy a new application at a moment's notice. But that's just the beginning.

# The benefits of Vultr's edge computing solutions

Latency is increasingly unacceptable in all industries. Customer expectations are higher than ever, so whether you offer cutting-edge esports gaming infrastructure or hosted websites and application back ends, you can't afford to make your users wait. Vultr's edge solutions ensure they won't have to.

Vultr offers numerous virtual machine (VM) and Bare Metal solutions with the option of fractional cloud GPU. Even with partial GPU capacity, users can integrate state-of-the-art artificial intelligence (AI) and machine learning (ML) solutions into data analysis, gaining more in-depth and actionable insights for making critical business decisions.

Nobody should compromise security for processing capabilities. Vultr only aligns services with data centers that are equally committed to users' data privacy and security and adheres to a model of shared-but-separate responsibility among its services, third-party solution providers, and customers. Vultr manages your platform's control plane, networks, and cloud storage – leaving you to choose the applications, data, middleware, OS, and storage options that meet your security and delivery needs.

Vultr believes that providing the optimal edge experience requires containerization and optimal container orchestration. While Kubernetes offers virtually unrivaled capabilities, it can cause management headaches. Vultr Kubernetes Engine (VKE), a fully managed orchestration solution, delivers the best of Kubernetes and a user-friendly experience. VKE even features a control plane with no management fees. You can deploy, scale, and oversee your clusters without stretching your budget.

By bringing the power of full-stack computing close to your data, Vultr ensures your applications have the resources necessary for the lowest latency, best performance, and optimal security.

# Use cases for Vultr's edge computing solution

The list of industries and companies that can benefit from edge computing is long and growing. Regardless of your product or service, the edge can help improve your user experience and create a powerful, flexible SaaS solution. Here are some examples of the types of work that can benefit from edge computing with Vultr.

- **E-commerce** – While edge computing is helpful across industries, its value to e-commerce businesses is undeniably significant. Enabling e-commerce or web developers to deploy and test at the edge allows them to ensure you're offering the best possible product to your customers, no matter where they are in the world.

  To create a smooth, reactive, and responsive experience for users worldwide, you need to set up your remote e-commerce developers with the right tools. Vultr offers the worldwide infrastructure required for true edge computing and brings many other features, such as virtual desktops and VPNs, that help your e-commerce developers work remotely at the edge.
- **Healthcare Providers** – The increased use of IoT medical devices and remote patient monitoring systems produces more and more data that must be monitored in real time. Deploying an edge compute server allows for low-latency, high-volume data processing, leading to desired health outcomes in patients.
- **Financial Companies** – High-frequency trading requires a tremendous amount of real-time data processing. Getting it right can lead to profitable investment decisions. Getting it wrong can lead to losses. Edge compute delivers the processing speed needed to conduct high-frequency trading at scale.
- **Manufacturers** – The numerous steps in the manufacturing process make it ideal for using sensors to collect data that can be analyzed at the edge and autonomously acted on. For instance, a bottling company can measure humidity in the plant. Too much humidity makes it difficult to adhere labels to bottles, causing them to slip off and jam up the machinery, resulting in broken bottles and a halt in production. An edge device can automatically adjust production speed according to humidity levels, making it easier to affix labels to bottles, and keep production running smoothly.

- **Data Science** – As data scientists perform machine learning techniques at the edge, they are reaping the benefits. Things like reduced latency, improved security, and energy efficiency are all advantages of machine learning at the edge. Vultr provides your data scientists with the tools they need to train models at the edge – close to where their data is stored.

  To properly enable your machine learning engineers and data scientists, they also need powerful tools away from the edge. This means setting them up with their own custom VDI solution that grants access to high performance computing tools.

- **Web App Development** – Web applications deployed to edge computing devices reduce bandwidth usage and latency, but require the knowledge and tools for proper edge development. Vultr's easy-to-use tools and infrastructure help guide your onsite and remote web developers to edge success. With locations available all over the world, and powerful web hosting offerings, Vultr can streamline your move towards edge deployment.

# Getting started with Vultr's edge computing solutions

With Vultr's user-friendly interface and well-documented APIs, your team can spin up and manage its edge infrastructure with ease.

Vultr's flexible pricing model means you'll get everything you pay for without worrying about wasted resources or unnecessary costs. Vultr's VM solutions start at $75 per month for one vCPU with 8 GB of memory, 4 TB of bandwidth, and 150 GB of storage. Plus, each multi-vCPU option lets you choose from two storage capacities. You can select from Bare Metal solutions that start at just $7.44 per hour for a 48-core/96-thread Intel CPU and 15 TB of bandwidth. And the VKE comes with the control plane at no additional cost – a feature that Big Tech regularly prices at around $70 per month.

# Keep your edge with Vultr

There's no time like the present to ensure your future business success. With each new data center it opens, Vultr moves the edge closer to the companies that need it. Vultr's distributed architecture ensures you and your team receive best-in-business computing power and speed at a budget-friendly price. Plus, Vultr's easy-to-use interface makes starting your journey that much easier.

**If you're ready to accelerate your business without infrastructure headaches and costly over-provisioning, check out Vultr's edge solutions and product documentation.**